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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/569,869

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Futoshi Nomura

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EXAMINER

HUANG, CHENG YUAN

ART UNIT

PAPER NUMBER

1787

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/569,869	<b>Applicant(s)</b> NOMURA ET AL.	
	<b>Examiner</b> CHENG HUANG	<b>Art Unit</b> 1787	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2011.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-10 and 12-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-10 and 12-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20110316</u>  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5, 8-10, and 12-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claims 1, 3, and 16-18 recite "said resin" which unclear given that there are more than one resin, i.e., alicyclic polyolefin resin or alicyclic acrylic resin.
4. Claims 1, 3, and 16-18 recite the limitation "said resin". There is insufficient antecedent basis for this limitation in the claim.

### *Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-2, 4, 9-10, and 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hingsen-Gehrmann et al. (U.S. Patent Application Publication No. 2002/0142121) in view of Yamamoto et al. (U.S. Patent Application Publication No. 2002/0135735) and Okinaka et al. (U.S. Patent No. 5,155,190), and as evidenced by Arton Property Tables.

8. Regarding claims 1, 3, and 14, Hingsen-Gehrmann et al. teaches a retroreflective sheeting (See title) comprising a surface layer (carrier 22, paragraph [0038], Fig. 1) providing a light entering side given that the layer is transparent (paragraph [0065]) light may enter through from at least one side and retroreflective element layer (space coat 33, layer of lenses 34, and lens coat 35, paragraphs [0042]-[0044], Fig. 1), with at least one destructive layer (release layer 32, paragraph [0041], Fig. 1) provided between the surface and retroreflective element layers (Fig. 1). The surface layer of Hingsen-Gehrmann teaches the surface layer of the presently claimed invention since the carrier layer 22 of Hingsen-Gehrmann is, in fact, a surface layer to underlying layers such as reflective layer 31 ([paragraph 0044], Fig. 1). Furthermore, in addition to being identical in structure, the surface layer of Hingsen-Gehrmann and that of the present invention comprise identical materials of acrylic polymers, polyvinyl chloride, polyurethanes, and polystyrene (Hingsen-Gehrmann, paragraph [0065]).

9. Hingsen-Gehrmann et al. teaches said destructive layer being polyester or polyacrylate resins (paragraph [0059]) but fails to teach the destructive layer being an alicyclic polyolefin resin or alicyclic acrylic resin.

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10. However, Yamamoto et al. teaches an optical article (See title) comprising a principal chain hydrocarbon having an adamantane ring or a cyclopentane ring (paragraph [0043]) which are alicyclic polyolefin resins and cyclohexyl methacrylate (paragraph [0043]), which is alicyclic acrylic resin. In addition, Yamamoto et al. teaches the use of polyester or acrylics (paragraph [0043]), which, in doing so, teaches the functional equivalence between hydrocarbon resins based on cyclical residues and alicyclic acrylic resin and polyester and acrylic resins.

11. Since both Hingsen-Gehrmann et al. and Yamamoto et al. teach inventions drawn to optical articles, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the hydrocarbon resin-based cyclical residues and alicyclic acrylic resins of Yamamoto et al. in the destructive layer of Hingsen-Gehrmann et al. as a known functional equivalent of polyester and acrylic resins since Yamamoto et al. teaches that various polymers, including polyesters and acrylic resins may be used, along with alicyclic polyolefin resins and alicyclic acrylic resins. Substitution of known components with other components that yield predictable results would have been obvious to one of ordinary skill in the art since predictable characteristics such as optical clarity, toughness, and heat resistance (paragraph [0044]) would have been affected by using alicyclic polyolefin resins or alicyclic acrylic resins or polyester or acrylic resins in the destructive layer of optical articles. See MPEP 2144.06 II.

12. Hingsen-Gehrmann et al. as modified by Yamamoto et al. is silent with respect to the molecular weight of the resin.

13. However, Okinaka et al. teaches an optical resin comprising alicyclic acrylic resin having a molecular weight range of 10,000 to 1,000,000 converted to standard polystyrene (col. 4, lines

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67-68, col. 6, lines 38-41), which overlaps the claimed range of 1,000-100,000 as converted to molecular weight of styrene.

14. Given the disclosure of equivalence and interchangeability of the acrylic and polyolefin resins in Yamamoto et al., it would have been obvious to one of ordinary skill in the art at the time of the invention to choose a molecular weight, including that claimed, for the alicyclic polyolefin resin of Hingsen-Gehrmann et al. as modified by Yamamoto et al. to impart excellent heat resistance and mechanical properties (Okinaka et al., col. 6, lines 38-39).

15. The functional limitation “wherein, when the retroreflective sheeting has been applied to a substrate and is removed, peeling takes place at the interface of the destructive layer and the layer which is in intimate contact therewith and/or by destruction of the destructive layer” is considered to define the particular capability of the retroreflective sheeting to be applied to a substrate and the destructive layer to peeling and/or destruct. Since the structure and materials of the retroreflective sheeting of Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. are identical to those of the presently claimed invention, when the invention is applied to substrate and removed, the peeling would intrinsically take place at the interface of the destructive layer and the layer which is in intimate contact therewith and/or by destruction of the destructive layer as presently claimed. Furthermore, Hingsen-Gehrmann et al. teaches the application of the retroreflective sheeting to a substrate (substrate 90, paragraph [0072], Fig 2 & Fig. 4) and the subsequent peeling and destruction of the destructive layer (paragraph [0072]).

16. Given that the destructive layer of Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. teaches materials and structure identical to that of the present claim, it is

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clear that the destructive layer of Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. intrinsically possesses the claimed peeling strength.

17. Regarding claim 2, Hingsen-Gehrmann et al. teaches comprising an adhesive layer (Hingsen-Gehrmann et al., adhesive 21, paragraph [0037], Fig. 1) opposite to said a light-entering side of the retroreflective sheeting (paragraph [0069], Fig. 1).

18. Regarding claim 4, Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. teaches wherein the destructive layer resin is of cyclopentane resins wherein R<sup>1</sup> is hydrogen (Yamamoto et al., paragraph [0047]).

19. Regarding claim 9, Hingsen-Gehrmann et al. teaches wherein the retroreflective sheeting comprises enclosed lens-type or lens-type micro-glass beads (enclosed layer of lenses, paragraphs [0056] and [0055]).

20. Regarding claim 10, Hingsen-Gehrmann et al. teaches wherein the destructive layer is installed between the micro-glass beads and specular reflective layer (release layer 32, layer of lenses 34, reflective layer 31, respectively, paragraphs [0068] and [0072], Fig. 1).

21. Regarding claim 12, Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. teaches wherein the destructive layer (cyclopentane resin, Yamamoto et al., paragraph [0047]) has glass transition points (T<sub>g</sub>) ranging from 120 to 165°C, as evidenced by Arton Property Tables, and falls within the claimed range of 90 - 190°C.

22. Regarding claim 13, given that Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. teaches the transparency of the reflective layer (transparent high-index reflector materials, Hingsen-Gehrmann et al., paragraph [0056]), which is the layer underneath the release or destructive layer (Hingsen-Gehrmann et al., paragraph [0056]), the transparency of

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the retroreflective sheeting (transparent PSA, transparent carrier films, and transparent holographic layer, paragraphs [0063], [0065], and [0079]), and the transparency of the materials of the destructive layer (transparent Nylon resins, Yamamoto et al., paragraph [0047]; cyclopentane resin as evidenced by Arton Property Tables), it is clear that the destructive layer of Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. is expected to possess the claimed transmission or light.

23. Regarding claim 15, Hingsen-Gehrmann et al. teaches the retroreflective sheeting is applied to said substrate (substrate 90, paragraph [0072], Fig 2 & Fig. 4).

24. Regarding claims 16, 17, and 18, Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. teaches wherein the said resin has a molecular weight range of 10,000 to 1,000,000 converted to standard polystyrene (col. 4, lines 67-68, col. 6, lines 38-41), which overlaps the claimed range of 5,000-100,000 as converted to molecular weight of styrene.

25. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hingsen-Gehrmann et al. (U.S. Patent Application Publication No. 2002/0142121) in view of Yamamoto et al. (U.S. Patent Application Publication No. 2002/0135735) and Okinaka et al. (U.S. Patent No. 5,155,190) and further in view of Koike (U.S. Patent No. 6,201,045).

26. Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. is relied upon as disclosed above.

27. Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. fails to teach wherein the destructive layer is a methacrylic acid ester resin or alicyclic acrylic resin as claimed.



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28. However, Koike et al. teaches an optical resin material (col. 4, lines 59-64) comprising a methacrylic acid ester resin or alicyclic acrylic resin (tricyclodecanyl methacrylate, col. 10, lines 13-14).

29. It would have been obvious to one of ordinary skill in the art at the time of the invention to use methacrylic acid ester resin for the destructive layer of Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. given the transparency, heat resistance, and mechanical strength of the resins (Koike et al., col. 10, lines 1-9).

30. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hingsen-Gehrmann et al. (U.S. Patent Application Publication No. 2002/0142121) in view of Yamamoto et al. (U.S. Patent Application Publication No. 2002/0135735) and Okinaka et al. (U.S. Patent No. 5,155,190) and further in view of Nito et al. (U.S. Patent No. 5,659,411), or alternatively, Suzuki et al. (U.S. Patent No. 7,582,355).

31. Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. is relied upon as disclosed above.

32. Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. fails to teach wherein the destructive layer resin is poly-1,3-cyclohexadiene resin or polycyclohexane resin.

33. However, Nito et al. teaches an optical resin material (col. 1, lines 7-13, col. 38, lines 25-28) comprising a polycyclohexane resin (polycyclohexane terephthalate, col. 38, line 49).

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34. It would have been obvious to one of ordinary skill in the art at the time of the invention to choose polycyclohexane resin for the destructive layer of Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. given the transparency of the resin (Nito et al., col. 38, lines 35-38).

35. Alternatively, Suzuki et al. teaches an optical unit (See Title, col. 43, lines 24-26) comprising poly-1,3- cyclohexadiene (col. 43, lines 32-33).

36. It would have been obvious to one of ordinary skill in the art at the time of the invention to choose poly-1,3- cyclohexadiene for the destructive layer of Hingsen-Gehrmann et al. as modified by Yamamoto et al. and Okinaka et al. for low birefringence and water absorbency but high dimensional stability (Suzuki et al., col. 43, lines 26-28).

### ***Response to Arguments***

37. Applicant's arguments filed 16 June 2011 have been considered but are moot in view of the new ground(s) of rejection.

38. Applicants amended independent claims 1 and 3 to include the molecular weight of the resin.

***Conclusion***

39. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

40. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHENG YUAN HUANG whose telephone number is (571) 270-7387. The examiner can normally be reached on Monday-Thursday from 8 AM to 4 PM.

42. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho, can be reached at 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

43. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. H./

Cheng Yuan Huang

Examiner, Art Unit 1787

June 22, 2011

/Callie E. Shosho/

Supervisory Patent Examiner, Art Unit 1787